Surgery Education: There's an App for That?

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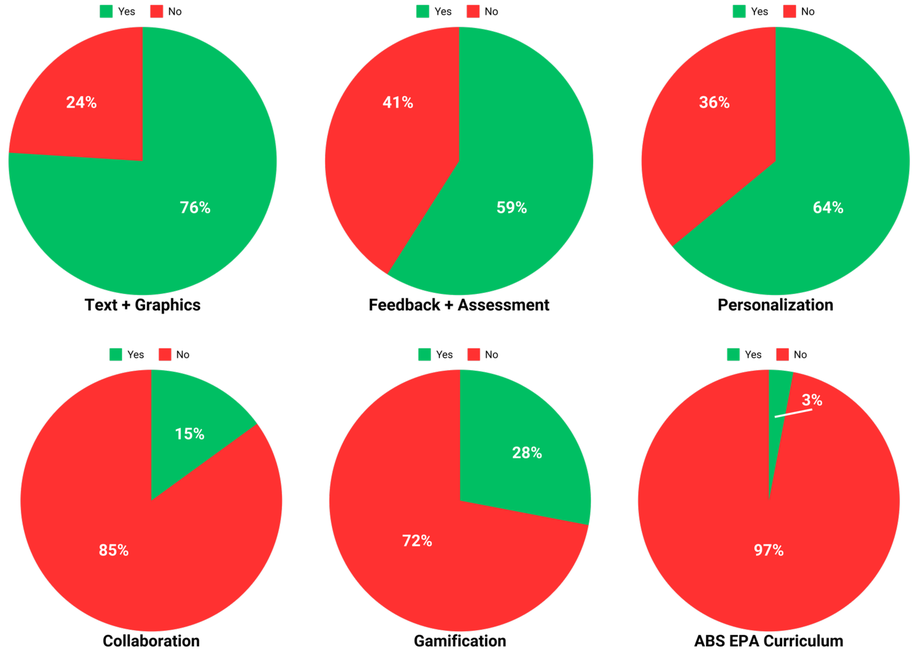
INTRODUCTION

Mobile applications (apps) can be effective e-learning tools in surgical education. In 2022, the American Board of Surgery (ABS) announced the transition to an entrustable professional activities (EPA) training model in which resident knowledge and operative skills are evaluated via an app. Since 98% of surgeons use smartphones and 52% use apps in clinical practice, harnessing apps to assess and guide surgical residents in EPA-based competency evaluations may be prudent. However, only 29% of surgical residents use apps for test preparation and building fund of knowledge. A potential concern that may limit the broader use of surgery education apps is their design or usability. Effective app design correlates with higher user engagement and improved learning outcomes. This study analyzes surgery education apps available on the iPhone Apple App Store using evidence-based design principles that have informed effective mobile e-learning in various settings and proposes suggestions to enhance user engagement.

METHODS

The iPhone Apple App Store was searched with keywords related to surgery education and yielded 440 results. Duplicate entries and apps with irrelevant content (e.g., dentistry, beauty, ASMR) or targeted at non-surgical audiences (e.g., patients, anesthesiologists) were excluded. 58 apps were assessed using 5 evidence-based principles adapted from the 1st edition of Mobile Learning: A Handbook for Developers, Educators, and Learners by Scott McQuiggan, Jamie McQuiggan, Jennifer Sabourin, and Lucy Kosturko.

RESULTS



Most of the apps analyzed (76%) incorporated multimedia and adhered to the basic principles of mobile e-learning design. 59% of apps offered opportunities for feedback and assessment, and 64% allowed for personalization. Few apps integrated collaboration (15%) and gamification (28%) features such as badges, points, leaderboards, and rewards. Only 3% of apps were aligned with the ABS's EPA curriculum.

CONCLUSIONS

Surgery education apps available on the iPhone Apple App Store do not adequately reflect contemporary mobile e-learning design principles. Future apps should align with the ABS's EPA curriculum and include gamification and collaboration features to enhance user engagement and learning outcomes.

FUTURE DIRECTIONS

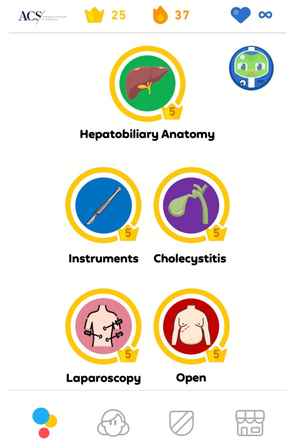


Figure 1: Mobile Surgery Education Application Interface

Sealy & Smith Laboratory for Surgical Training, Assessment and Research

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